

Indian Point 3
Nuclear Power Plant
P.O. Box 215
Buchanan, New York 10511
914 736 8001



Robert J. Barrett
Site Executive Officer

October 9, 1997
IPN-97- 139

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

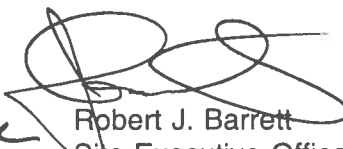
SUBJECT: Indian Point 3 Nuclear Power Plant
Docket No. 50-286
License No. DPR-64
Licensee Event Report # 97-024-00
**Reactor Trip Due to a Turbine Trip as a Result of a Personnel
Error During Turbine Generator Mechanical Trip Testing**

Dear Sir:

The attached Licensee Event Report (LER) 97-024-00 is hereby submitted as required by 10 CFR 50.73. This event is of the type defined in 10 CFR 50.73 (a)(2)(iv).

Also attached are the commitments made by the Authority in this LER.

Very truly yours,

For 
Robert J. Barrett
Site Executive Officer
Indian Point 3 Nuclear Power Plant

cc: See next page

9710210166 971009
PDR ADOCK 05000286
S PDR



cc: Mr. Hubert J. Miller
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Region I
U. S. Nuclear Regulatory Commission
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King of Prussia, Pennsylvania 19406-1415

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Atlanta, Georgia 30339-5957

U.S. Nuclear Regulatory Commission
Resident Inspectors' Office
Indian Point 3 Nuclear Power Plant

Commitment List

Number	Commitment	Due
IPN-97-139-01	An analysis will be performed to determine the cause of the procedural error.	October 31, 1997
IPN-97-139-02	An analysis will be performed to determine the cause of the failure of the operating crew to detect the change in status of permissives P-7 and P-10.	October 31, 1997

CATEGORY 1

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9710210166 DOC. DATE: 97/10/09 NOTARIZED: NO DOCKET #
FACIL: 50-286 Indian Point Station, Unit 3, Power Authority of Stat 05000286
AUTH. NAME AUTHOR AFFILIATION
BARRETT, R.J. Power Authority of the State of New York (New York Power Au
RECIP. NAME RECIPIENT AFFILIATION
Document Control Branch (Document Control Desk)

SUBJECT: Forwards LER 97-024-00 re reactor trip due to turbine trip
as result of personnel error during generator mechanical
trip testing. Commitments made by util in LER attached.

DISTRIBUTION CODE: IE22T COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 3+5
TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

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NRC FORM 366
(5-92)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95**LICENSEE EVENT REPORT (LER)**

(See reverse for required number of digits/characters for each block)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH
THIS INFORMATION COLLECTION REQUEST: 50.0 HRS.
FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO
THE INFORMATION AND RECORDS MANAGEMENT BRANCH
(MNB 7714), U.S. NUCLEAR REGULATORY COMMISSION,
WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK
REDUCTION PROJECT (3150-0104), OFFICE OF
MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.FACILITY NAME (1)
Indian Point 3DOCKET NUMBER (2)
05000286PAGE (3)
1 OF 5

TITLE (4) Reactor Trip Due to a Turbine Trip as a Result of a Personnel Error During Turbine Generator Mechanical Trip Testing

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
09	10	97	97	-- 024 --	00	10	9	97	FACILITY NAME	DOCKET NUMBER 05000
OPERATING MODE (9)		N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
POWER LEVEL (10)		7	20.402(b)		20.405(c)		<input checked="" type="checkbox"/>		50.73(a)(2)(iv)	73.71(b)
			20.405(a)(1)(i)		50.36(c)(1)				50.73(a)(2)(v)	73.71(c)
			20.405(a)(1)(ii)		50.36(c)(2)				50.73(a)(2)(vii)	OTHER
			20.405(a)(1)(iii)		50.73(a)(2)(i)				50.73(a)(2)(viii)(A)	(Specify in Abstract below and in Text, NRC Form 366A)
			20.405(a)(1)(iv)		50.73(a)(2)(ii)				50.73(a)(2)(viii)(B)	
			20.405(a)(1)(v)		50.73(a)(2)(iii)				50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME
John Wheeler, Assistant Operations ManagerTELEPHONE NUMBER (Include Area Code)
(914) 736-8202

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)

YES
(If yes, complete EXPECTED SUBMISSION DATE).

X NO

EXPECTED
SUBMISSION
DATE (15)

MONTH DAY YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On September 10, 1997, with the reactor power at approximately 7 percent, a reactor trip (RT) occurred as a result of a turbine trip (TT) during a turbine generator (TG) trip test. During performance of a TG test, operators closed the switch stabs to the TT solenoids with the TT relays in the tripped condition. This operation re-instated the trips into the TT logic and initiated a TT. Reactor power (RP) was below the permissive P-10 actuation level and permissive P-7 was active. Operators knew that prior to the test one of the two inputs for the trip logic for actuating P-10 was active [Power Range (PR) channel]. The P-7 permissive includes a bypass of the TT signal to the reactor protection system which is activated with input from P-10. A RT occurred because another PR channel actuated and made up the trip logic, thereby defeating the P-7 bypass. The cause of the RT was an error in the test procedure which did not require the TT relays to be reset prior to re-instating these trips into the TT logic, and failure of operators to detect a change in permissive status (P-10/P-7 reset). The procedure error was introduced as a result of inadequate review of changes incorporated into the procedure. A contributing cause was failure to perform self checking during procedure use. Corrective actions include revision of the test procedure, verified operability and calibration of permissive bistables and indicators, review and validation of recently revised operating tests/procedures needed to be performed for startup which may cause a transient, and briefed the operating crew on STAR principles. An analysis will be performed on cause of the procedure and operator error. There was no effect on public health and safety.

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LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)		DOCKET NUMBER (2)		LER NUMBER (6)			PAGE (3)
Indian Point 3		05000286		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 5
				97	-- 024 --	00	

TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

Note: The Energy Industry Identification System Codes are identified within the brackets { }

DESCRIPTION OF EVENT

On September 10, 1997, at approximately 0301 hours, a reactor trip (RT) occurred as a result of a turbine trip (TT) during performance of a trip test on the main turbine generator (MTG) {TA}. All control rods {AA} fully inserted, main feedwater {SJ} isolated and no engineered safety feature actuated as a result of the event (main feedwater pumps in standby, auxiliary feedwater pumps in operation). Primary and secondary systems functioned properly and the plant was stabilized in the hot shutdown condition. At approximately 0402 hours, operations provided a four-hour non-emergency notification to the NRC reporting a Reactor Protection System (RPS) {JC} actuation (See ENS Report No. 32898). At the time of the event, the plant was in the process of starting up from a refueling outage, reactor power was approximately 7 percent, zero MWe output, Reactor Coolant System (RCS) temperature and pressure was approximately 550 degrees F, and 2235 psig respectively.

At approximately 0130 hours, operations initiated performance of TT testing in accordance with 3PT-V06, "Turbine Generator Mechanical Trip Test." Because of the scheduled TT testing, operators established reactor power at approximately 7 percent to ensure the permissive P-10 bistable was not active and enable permissive P-7 (which provides a bypass of a TT to the RPS). Permissive P-10 is activated when 2 out of 4 Power Range (PR) nuclear instrumentation channels detect power greater than 10 percent. Permissive status lights are provided on the control room flight panel. When permissive P-7 is active the "Power Below P-7" status lamp illuminates and extinguishes when power and turbine load is greater than 10 percent. Permissive P-7 is activated by inputs from the turbine first stage pressure detectors and the PR nuclear instrumentation channels. The PR input is supplied by the P-10 permissive. Prior to the event, test steps for the Thrust Bearing Oil Pressure Trip test were completed and steps to restore the MTG lockout relay trips (86P and 86BU) {94} of turbine auto stop trip solenoids (20/AST and 20/ASB) {SOL} were initiated.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

At approximately 0259 hours, operators initiated the transmission of a trip signal to the MTG's primary and backup lockout relays (86P and 86BU) {94} in accordance with a step of the test procedure. The 86P/86BU relays tripped, but the MTG did not trip due to opening of relay test switch stabs (H and I) {HS} going to the turbine auto stop trip solenoids {SOL}. At approximately 0301 hours, the test switch stabs for the TT solenoids were closed in accordance with the test procedure (3PT-V06). The tripped 86P/86BU lockout relays satisfied the TT logic which sent a signal to trip the MTG.

Because a TT signal was initiated (test stabs to the TT solenoids were closed) and the P-7 interlocks were defeated, a RT signal was initiated. As designed the reactor and turbine tripped. A RT signal is developed from the NIS PR channels N-41, 42, 43, 44, Reactor Protection Relay Racks (RPRR) {JC}, and the Reactor Trip System (RTS) {JC} to trip the reactor {AC} on a TT above selected setpoints. Permissive P-7 is the logical "OR" of permissive P-10 and blocks trips not required at low power. A TT results in a direct RT when power is above the P-7 setpoint, but is blocked below the P-7 setpoint. Reactor power must be maintained low enough to prevent P-10 from picking up and enabling a TT to cause a RT. Operators believed that reactor power was constant and that P-7 was active (power below 10 percent) and P-10 was not active (power above 10 percent). The operators did not expect a TT for the procedure step being performed.

Operators entered the appropriate Emergency Operating Procedure (EOP) in response to the event and took actions to stabilize the plant. Investigation of the event determined that test procedure (3PT-V06) contained an error. Procedure 3PT-V06 contained a step to close the test stabs for the TT relays with the trip conditions made up without first requiring reset of the lockout trip relays (86P and 86BU) prior to installation of the relay test stabs (H and I). Further investigation determined that the permissive bistables and trip logic was set correctly. Recorded power levels show power was below the permissive P-10 actuation level and the permissive lights were operating properly. Plant recordings do not show spikes that could have actuated the second power range channel (N42). Monitoring was performed during the restart and no unusual performances of the permissive and trip logic was identified.

LICENSEE EVENT REPORT (LER)
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TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

CAUSE OF EVENT

The cause of the trip was personnel error due to a mistake in the test procedure which failed to require the turbine trip lockout relays (86P/86BU) to be reset and failure of the operators to detect a change in status of the P-10 and P-7 indicators. The procedure error was introduced during procedure revision in April 1997 as a result of inadequate review. Contributing cause was failure to use proper error detection practices during procedure use. Self checking was not applied by the test operator during procedure use to ensure the intended action was correct before it was performed.

CORRECTIVE ACTIONS

The following corrective actions have been or will be performed to address the causes identified for this event and prevent recurrence:

- Reviewed and validated recently revised system operating procedures and operational surveillance tests procedures that could cause a unit transient prior to their use during the remainder of plant startup.
- Verified the operability and calibration of P-7 and P-10 permissive lights and bistables.
- Revised test procedure 3PT-V06 to require reset of the lockout trip relays (86P and 86BU) prior to installation of the relay test stabs (H and I) for 86P and 86BU, and added a precaution and limitation that reactor power be maintained less than P-10 threshold. Effective date of revision 13 is September 11, 1997.
- The operating crew was briefed on the event to include the use of "STAR" and the availability of information from the Critical Function Monitoring System.
- An analysis will be performed to determine the cause of the procedural error. Scheduled completion date is October 31, 1997.
- An analysis will be performed to determine the cause of the failure of the operating crew to detect the change in status of permissives P-7 and P-10. Scheduled completion date is October 31, 1997.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-D001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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ANALYSIS OF EVENT

The event is reportable under 10 CFR 50.73 (a)(2)(iv). The licensee shall report any event or condition that resulted in a manual or automatic actuation of an Engineered Safety Feature (ESF), including the RPS. This event meets the reporting criteria because there was an unplanned RT as a result of an automatic actuation of the RPS. A RT occurred on September 10, 1997, as a result of conditions for a trip that were satisfied during testing of the TT capability due to a procedural error.

A review was performed of Licensee Event Reports (LER) over the last two years that reported automatic RT and none were identified. During that time one similar LER (LER 96-009) reported a manual RT as a result of insufficient procedural guidance.

SAFETY SIGNIFICANCE

This event had no effect on the health and safety of the public. The safety function was performed as designed when the reactor tripped after the conditions for trip were satisfied. A RT on TT is designed to protect the reactor against loss of heat sink and is provided as an anticipatory trip. It is not necessary to trip the reactor below 10 percent because it can accept a 10 percent load change without exceeding its operating limitations. For power operation and analyzed accidents and transients (e.g., LOCA, LOOP, Seismic, Loss of Normal Feedwater, Loss of External Electrical Load) the RPS/ESF would have operated as designed and maintained the plant within its safety limits.